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CHANGING DEFENSE CONCEPTS

by

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	PAGE
REVISION OF BRITAIN'S DEFENSE STRATEGY	365
Reliance on Nuclear Weapons to Ward Off Attack	365
Impact of British Changes on NATO Defense Plans	368
NATO Council Debate on the Role of Nuclear Arms	370
U.S. Reaction to British Decision to Reduce Forces	371
ADJUSTMENTS IN AMERICAN DEFENSE POLICIES	372
Effect of Missiles on Armed Service Missions	372
Inter-Service Rivalry; Clarification of Missions	373
Reflection of New Concepts of Defense in Budget	375
Emphasis on Atomic Arms in Army, Navy, Air Force	376
STRATEGIC DOCTRINES AND NATIONAL SECURITY	379
Controversy Over Adequacy of Nuclear Strategy	379
American Espousal of Idea of Massive Retaliation	380
Conversion to Measured Atomic Retaliation Policy	380
Need to Maintain Balanced Forces Despite High Cost	381

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CHANGING DEFENSE CONCEPTS

THE FREE WORLD'S increasing reliance on nuclear weapons to prevent or combat aggression was signalized last month by Great Britain's clear-cut decision to concentrate on atomic arms at the expense of conventional military force. The shift in military concepts was emphasized again early in May when the North Atlantic Council firmly adhered, in the face of Russian threats, to its plan to utilize nuclear weapons in the defense of Western Europe. Both actions bore out changes in military thinking that have been going on in the world since advent of the atomic age.

Startling advances in military technology, existence of a nuclear stalemate between East and West, and the astronomical costs of simultaneously maintaining both conventional and air-atomic defenses have combined to force modification of traditional approaches to military planning. The United Kingdom's realistic reappraisal of its strategic and economic position led it into the most drastic step yet taken by a first-class military power. That action highlighted the whole complex of questions confronting defense planners in other countries: What kind of wars should they prepare for? What kind of forces should they maintain? What kind of strategy should they devise?

Reliance on Nuclear Weapons to Ward Off Attack

A White Paper presented to Parliament on Apr. 4 gave the reasons for the London government's decision to base defense primarily on nuclear weapons. Asserting that dramatic strides in military technology necessitated fundamental changes in the whole basis of planning, the paper said the time had come to "revise not merely the size but the whole character of the defense plan" and effect the "biggest change in military policy ever made in normal times."

The government pointed out that "Britain's influence in the world depends first and foremost on the health of her

internal economy and the success of her export trade," and that the country's military power in turn depends on those two factors. The defense program had been absorbing 10 per cent of the nation's gross national product and more than 12 per cent of the output of the metal-using industries; it had been using the services of 7 per cent of the working population and an undue proportion of qualified scientists and engineers. It was necessary, therefore, to draw up an effective and economical plan which would assure the means to carry out national commitments and yet make "no greater demands than . . . absolutely necessary upon manpower, money, and other national resources."

In the presence of today's weapons of mass destruction, the White Paper observed, defense of the British Isles was "possible only as part of the defense of the free world." Because the trend in military planning was toward creation of "integrated allied forces," it was not necessarily desirable for each member of an alliance to "contribute national forces which are by themselves self-sufficient and balanced in all respects." In its most startling passage the White Paper declared:

> It must be frankly recognized that there is at present no means of providing adequate protection for the people of this country against the consequences of an attack with nuclear weapons. Though, in the event of war, the fighter aircraft of the Royal Air Force would unquestionably be able to take a heavy toll of enemy bombers, a proportion would inevitably get through. Even if it were only a dozen, they could with megaton bombs inflict widespread devastation.
>
> This makes it more than ever clear that the overriding consideration in all military planning must be to prevent war rather than to prepare for it. While comprehensive disarmament remains among the foremost objectives of British foreign policy, it is unhappily true that, pending international agreement, the only existing safeguard against major aggression is the power to threaten retaliation with nuclear weapons.

London acknowledged that the free world at present had to depend mainly on the nuclear capacity of the United States, but it noted wide agreement that Britain should possess "an appreciable element of nuclear deterrent power of her own." British atomic bombs were already in steady production. A hydrogen bomb was soon to be tested and a stock of such bombs would be manufactured. It was the intention that conventional means of delivery should be supplemented by ballistic rockets, and agreement had been

reached with the United States for supply of some medium-range missiles of that type. To defend bomber bases and launching sites, a manned fighter force—to be progressively equipped with air-to-air guided missiles—would be maintained until the aircraft could be replaced by ground-to-air missiles.

PROPOSED CUTBACKS IN BRITISH CONVENTIONAL FORCES

The British government agreed that nuclear air power was not a complete deterrent and that Europe must be defended also "on the ground," but it said Britain could no longer make a "disproportionately large contribution" to forces of the North Atlantic Treaty Organization. It was planned, therefore, within the coming year, to reduce the strength of the British Army of the Rhine from about 77,000 to around 64,000 men and to cut in half the number of Royal Air Force planes in Germany. The reductions would be offset by equipping the remaining army units with atomic artillery and the air squadrons with atomic bombs. Naval contributions to NATO would be continued on a "somewhat reduced scale."

Great Britain's military responsibilities in the Middle East and in Southeast Asia will require maintenance of certain land, sea, and air forces in Cyprus, the Arabian Peninsula, East Africa, Hong Kong, Singapore, and various colonies and protectorates. British troops are getting out of Jordan and Korea and are to be cut back in Libya. To provide reinforcements for the reduced garrisons overseas and for the NATO units, a central reserve of land forces will be maintained in the United Kingdom. The combined strength of the Army, Navy, and Air Force, now listed at about 690,000, will be reduced to around 625,000 during the coming year and to approximately 375,000 within five years. It is planned to halt conscription in 1960 and to have only "regulars" in the forces five years hence.

The main elements of the Royal Navy are to be based upon a small number of carrier groups. The number of other types of large ships will be "restricted to the minimum." Cruisers will be reduced in number and eventually replaced by newer ships. The number of smaller vessels also will be reduced, and their more modern replacements will be equipped with guided missiles. "A considerable number of ships, now in reserve, including battleships, will be disposed of or scrapped."

Inasmuch as maintenance of an effective deterrent is a "central feature of the defense plan," the White Paper said that "high priority would be given to development of nuclear weapons suitable for delivery by both manned bombers and ballistic rockets." It noted that supply of missiles by the United States "should result in savings of time and money, and will enable work to be concentrated upon more advanced types." In view of anticipated progress in missiles and missile defense, efforts to develop a manned supersonic bomber will be discontinued.

Start on New Plan in British Armed Services

Budget estimates submitted to the House of Commons in April showed that Army and Navy expenditures will fall off substantially in the fiscal year ending Mar. 31, 1958, while Air Force spending will rise to some extent. With troop strength trimmed from 373,000 to 335,000 men, the Army will take the largest budget cut. However, more emphasis will be put on missiles. One guided missile regiment armed with American-made Corporal missiles already has been formed at an Army base in southern England,[1] and another is to be activated during the next 12 months.

Navy outlays also will go down along with reduction of naval personnel by 7,000 to a total of around 121,000 men. Four of Britain's five battleships are to be scrapped, and other large obsolete vessels will be replaced by fleet escorts armed with guided missiles. The new Royal Navy will be reorganized around carrier task groups; eventually it will have 13 carriers.

The increase in Air Force expenditures, despite a cut in manpower from 230,000 to 210,000, reflects the added emphasis on, and costliness of, missiles. It was announced, Apr. 25, that a missile department had been created in the Air Ministry; that an air-to-air missile unit had been established in the R.A.F.; and that the first operational missile station, located on the east coast of England, would be ready next year.

Impact of British Changes on NATO Defense Plans

Although other NATO members had general knowledge of Britain's intention to revamp its defense policy, they were not prepared for the far-reaching extent of the changes. The "shield" theory of defense adopted by NATO planners

[1] See "American-British Relations," *E.R.R.*, Vol. I 1957, p. 188.

calls for conventional forces in Western Europe in sufficient strength to meet a local attack, delay an aggressor until allied nuclear power can be brought into play, and convince both the European allies and the Kremlin that an attack on NATO territory would result in atomic reprisal. If the shield were thinned out too much, the potential aggressor might doubt that a local attack would bring nuclear retaliation and be tempted to take the risk.

The British announcement stirred fears in the free world that reduction of British troop strength in Germany would dangerously weaken the combined allied force. There was apprehension also lest Great Britain's action induce a chain reaction. It was feared that other nations in the Atlantic alliance might decide either to withdraw troops from the NATO command or to reduce their conventional forces and rely in future on nuclear weapons.

West German Chancellor Konrad Adenauer indicated at a news conference on Apr. 5, a day after publication of the British White Paper, that London's decision to rely primarily on nuclear deterrence had convinced the Bonn government that its armed forces must have tactical atomic weapons. With atomic rearmament in "flood tide," the Chancellor observed, Germany could do nothing else.

Adenauer's statement raised a great storm. After 18 leading German nuclear physicists, four of them Nobel Prize winners, had declared they would not "take any part in the manufacture, testing, or use of atomic weapons," Bonn felt obliged to announce, Apr. 17, that it would "not produce its own atomic weapons." The same day, Defense Minister Franz Josef Strauss explained on the radio that there was no question of equipping the German Army with strategic nuclear weapons; equipping it with tactical atomic arms under American control would "not take place before 1959." [2]

In anticipation of a shift from conventional to nuclear armament, however, West Germany has scrapped the 1954 plan to build up a force of 12 divisions and 500,000 men. Strauss had indicated that the original plan might have to be altered in order to provide more modern and mobile forces capable of operating in atomic war. The new plan,

[2] It has been reported without confirmation that the West German and French governments have considered undertaking a joint atomic weapons program. Bonn's participation in any such plan would require release from its pledge, under the Paris pacts of 1954, to refrain from manufacturing atomic arms or guided missiles.

as outlined in the German press in mid-April, calls for a force of only around 200,000 men by the end of 1961.

France's intention to revamp its military planning so as to put chief reliance on nuclear force was announced earlier this month. Details are to be submitted to the National Assembly in the near future.

NATO COUNCIL DEBATE ON THE ROLE OF NUCLEAR ARMS

The problem of whether to place primary reliance on nuclear weapons or conventional forces dominated the scene when the North Atlantic Council met in Bonn on May 2 and 3. Spokesmen for the smaller nations scored the British decision to reduce land components and concentrate on atomic arms. They were fearful that dependence on nuclear deterrence would lead to a slighting of ground forces and tend to compel the West to put atomic weapons to use in situations short of full-scale war.

Secretary of State Dulles attempted to allay such fears by conveying President Eisenhower's assurances that the United States contemplated no cuts in American forces assigned to NATO. At the end of the two-day session, the Council itself sought to reconcile differences over the extent to which the alliance should rely on nuclear defense.

A communique on May 3 noted that it was the availability of the most modern weapons which would discourage attacks on the Atlantic alliance. The Council insisted that NATO "must be in a position to use all available means to meet any attack." At the same time, it pointed out that it was necessary to "retain an effective deterrent against aggression, including a powerful shield of land, sea, and air forces, to protect the territory of member states."[3] Pending completion of further studies by its military experts, the Council postponed a firm decision on the balance to be maintained between nuclear and conventional forces.

The North Atlantic Council had authorized NATO commanders in December 1954 to base military planning on the assumption that their forces would have the most modern arms, including atomic weapons. Secretary Dulles said after that meeting that such weapons would be used for

[3] Specific support of this view was voiced by Prime Minister Macmillan and Chancellor Adenauer in a joint communique issued May 9, when the two heads of government concluded conversations at Bonn in which they reached "full agreement on the main aims of their policies."

tactical rather than strategic purposes; he noted that tactical atomic armament was fast becoming conventional.

Secretary of Defense Wilson is understood to have told the NATO Council on Dec. 14, 1956, that the United States would continue to supply its allies with weapons designed to take nuclear warheads but not with the warheads themselves. The Council announced Apr. 12, 1957, that the United States would distribute Honest John, Matador, and Nike missiles, all capable of carrying either conventional or nuclear warheads, to member nations. Those missiles are of comparatively short range. Field Marshal Montgomery said on Apr. 18 that NATO defense planning was based on the expectation that missiles with a 2,000-mile range would be available by 1966.

U.S. REACTION TO BRITISH DECISION TO REDUCE FORCES

American reactions to the new British defense arrangements were mixed. Some saw the impending cutbacks as imposing added military responsibility and added expense on the United States. Army Secretary Wilber M. Brucker said at a news conference, Apr. 11, that the United States would fill any gaps in the Western defense line by regrouping its forces. Secretary Wilson told reporters a week later that the British action would not have great impact on this country because the American military program was "really largely independent of what other people may do."

President Eisenhower said at his news conference on Apr. 10 that he admired "the courage and the nerve" of the British in attempting to "cut their cloth . . . according to what they had and not to what they would like to have." He noted that Britain had had a "really heroic row to hoe in trying to keep its economic nose above water." A week later the President told newsmen that the British cutbacks did not affect this country's military program materially, but he said the United States was disappointed to see British troops taken out of Europe. He indicated that the intermediate range missiles promised to Britain would not be available for some time; they would be supplied "when, as, and if they are ready for issue." [4]

[4] Estimates as to how soon the missiles will be ready vary widely. Chairman Richard B. Russell (D-Ga.) of the Senate Armed Services Committee said, Apr. 7, that the Air Force expected to have its intermediate range missile in a "matter of months." But C. L. Sulzberger, writing in the *New York Times* of May 4, 1956, said "The British public must blanch if it knew how few ballistic missiles will be received . . . in the next few years."

Adjustments In American Defense Policies

ALTHOUGH the position of the United States is unlikely to allow as drastic a revision of defense policy as that undertaken by Great Britain, this country's military outlook has been deeply affected by technological developments. In the words of President Eisenhower: "We are going through a period . . . of change, . . . we are deserting doctrines . . . long . . . held sacrosanct in the services, and we are going into another kind of world with respect to all military formation, policy, . . . organization, and equipment." [5] The technological revolution has profoundly altered the nature of warfare, blurred former distinctions between land, sea, and air missions, and exacerbated traditional differences between Army, Navy, and Air Force.

Effect of Missiles on Armed Service Missions

The controversy over roles and missions of the services has been intensified by the introduction of missiles and other modern weapons. These new arms have tended to render obsolete the traditional division of functions among the three branches of the service. Formerly, the primary mission of each branch was defeat of its enemy counterpart; the Army was responsible for gaining control of the ground, the Navy the sea, and the Air Force the sky. But as Henry A. Kissinger of the University of Pennsylvania's Foreign Policy Research Institute has observed, "With modern weapons, the traditional definition of primary missions amounts to giving each service a claim to develop a capability for total war."

> For the sky cannot be dominated short of a scale of attack on the opposing retaliatory force which will unleash an all-out conflict; control of the seas implies the destruction of industrial facilities and supply depots deep in enemy territory . . .; and the Army has declared a 1,500-mile missile essential for the performance of its mission. . . .
>
> As a consequence of the lack of doctrinal agreement, none of the services can be certain that a sister service's interpretation of what constitutes an essential target accords with its own. It is therefore convinced that it cannot relinquish control over any weapon which it believes important to the achievement of its mission.

Kissinger concluded: "The only way a service can be cer-

[5] Remarks at news conference, Washington, May 23, 1956.

tain that its targets will . . . be attacked is to seek to obtain every weapon that can be used against them, even if such a weapon already exists in a sister service." [6]

Thus, all three services need, develop, and use missiles. The Army employs them for anti-aircraft and artillery missions; the Navy for anti-aircraft, shore-bombardment, and supplementary strategic purposes; the Air Force for fighter combat, tactical bombing, and major strategic assignments. The new weapons have enabled some of the services to carry out missions that formerly belonged exclusively to one of the other branches.[7] Technological developments have outpaced strategic thinking, and all three services—prompted by the knowledge that "whoever controls the missiles will dominate the military scene . . . ten years from now" [8]—have put forward strong claims for expanding roles in the use of missiles. The result has been a bitter inter-service fight over organization and strategy and over division of the defense budget.

Inter-Service Rivalry; Clarification of Missions

Inter-service differences exploded into the open a year ago when representatives of some of the services slipped staff papers setting forth their particular doctrines to newsmen. Secretary Wilson tried to put a damper on the squabbling, May 21, 1956, by calling an extraordinary press conference attended by all top military and civilian officials of the Defense Department. The Secretary pointed out that the "great advances . . . in the development of revolutionary weapons" required continual review of service roles and missions. He gave assurance that any future reassignment would be "based on what is in the best interest of the country and . . . [would] not be adversely influenced by the promotional activities of partisan service representatives."

The controversy nevertheless continued to simmer. In a further effort to end disputes over control of missiles and other matters, Wilson on Nov. 26 issued a directive on the "clarification of roles and missions." He assigned to the Army responsibility for development and use of

[6] Henry A. Kissinger, "Strategy and Organization," *Foreign Affairs*, April 1957, pp. 381-382.

[7] "When . . . is a ballistic missile a modern form of artillery and when is it a bombardment plane? When is an anti-aircraft missile a substitute for an anti-aircraft gun and when is it a form of pilotless interceptor?"—Hanson W. Baldwin, *New York Times*, May 27, 1956.

[8] Rep. George H. Mahon (D-Tex.), chairman of House Appropriations subcommittee on defense appropriations, Apr. 27, 1957.

surface-to-air missiles for point defense—the defense of specified regions, cities, and installations; the Air Force was made responsible for developing and using surface-to-air missiles for area defense—defense against enemy attacks remote from individual installations, industrial complexes, or population centers.

The Secretary authorized the Army to continue work on surface-to-surface missiles used for close support of field operations. He assigned to the Air Force sole responsibility for operational employment of land-based intermediate range ballistic missiles and ordered the Army not to plan on using that or any other missile with a range of more than 200 miles.

Wilson noted that assignment of certain missiles still undergoing technical evaluation would have to await completion of studies in progress. In that category he specified; among others, two intermediate range ballistic missiles—the Army's Jupiter and the Air Force's Thor. The Army was to continue work on the Jupiter only until June 30, 1957. In the year beginning July 1 "budget support . . . for the intermediate range . . . missile program, as required" was to be provided by the Air Force.

It soon became apparent that the controversy over the merits of, and responsibility for, the rival intermediate range missiles was still far from settled. The Secretary of Defense said on Feb. 26 that, although the missile finally accepted might contain as many aspects of the Jupiter as of the Thor, the Jupiter had been "canceled in effect." The next day, Army Secretary Brucker, with Wilson's authority, announced that both the Jupiter and the Thor projects would "continue side by side" until some future date when an evaluation of the two missiles would be made. "Only at that time," Brucker said, "will one or the other be discontinued." [9]

Lt. Gen. James M. Gavin, Army chief of research and development, indicated—in testimony before a House Appropriations subcommittee released May 2—that the Army considers the limitations placed on its use of missiles unrealistic. Gavin expressed the opinion that the Wilson

[9] According to Hanson W. Baldwin, in the *New York Times* of Mar. 17, 1957, the evaluation is scheduled to be made toward the end of this year. Afterwards, "The best components of both [missiles] will be combined, and Jupiter, as a separate project, will come to an end." See "Future of Overseas Bases," *E.R.R.*, Vol. I 1957, pp. 78-79.

directive of last November would soon be found outdated. President Eisenhower seemed to back the Air Force, however, when he observed at his news conference on May 8: "Why would the Army want a 1,500-mile missile itself . . . [when] the first requisite of using that kind of weapon is that you have very good observation to find out whether it is doing the kind of job you thought it was? The only way you can find that out would be with an Air Force that could penetrate at least 1,500 miles into the enemy territory, and that puts you right into the big Air Force business." [10]

Reflection of New Concepts of Defense in Budget

The readjustment of service roles necessitated by modern weapons is reflected in the $38 billion military budget for the fiscal year 1958. President Eisenhower noted in his budget message last January that introduction of new weapons with "vastly greater combat capability" was having a "powerful impact on concepts of military strategy, tactics, and organization." He outlined four basic military missions of the U.S. defense program and pointed out that each service had an active role in carrying them out. The missions, which cut across traditional service lines, require the defense establishment:

1. To maintain ready nuclear-air-retaliatory forces so strong that they will deter a potential aggressor from initiating an attack.
2. To build a defense system which will minimize the chances of successful attack on this continent.
3. To maintain mobile and versatile forces suitably deployed and ready for immediate action in case of aggression.
4. To maintain control of the essential sea areas and lines of communication.

The President indicated that both the Strategic Air Command and the Navy had responsibilities in carrying out the first mission; all of the services had roles in performance of the second mission; the Army and Marine Corps were responsible for the third; and the Navy, Air Force, and "elements of the other services" for the fourth. He observed that "The means of accomplishing these basic military missions constantly change as new weapons are introduced." The United States was developing a "whole new family of even more advanced weapons for all the

[10] The Army-Air Force dispute may get further airing at the court martial, now scheduled to open June 25, of Col. John Nickerson, Jr., a senior officer at Redstone Arsenal, the Army missile center, who has been charged with divulging classified information.

services," but in the meantime it had to buy enough current types of arms to "preserve . . . readiness until the effectiveness of the advanced weapons . . . [has been] demonstrated."

Emphasis on Atomic Arms in Army, Navy, Air Force

Eisenhower observed in the budget message that nuclear weapons, and the ability to employ them, constituted the "most effective deterrent to an attack on the free nations." He pointed out also that "The combat power of . . . divisions, wings, and warships has increased to such an extent that it is no longer valid to measure military power in terms of the number of such units."

The Army now is planning a complete tactical reorganization. Within the next year it expects to deactivate two of the present 19 divisions and transform the remaining 17 into "pentomic" divisions especially tailored for nuclear warfare. The new units are to have five combat groups, each about the size of a large battalion, instead of the conventional three regiments. Manpower strength of the new airborne division will be around 11,500, as compared with about 17,000 in the old unit; that of the new infantry division approximately 13,700 men, as compared with roughly 17,500 in the old. The pentomic divisions are to be equipped with Honest John rockets, which can be fitted with either conventional or nuclear warheads.

In addition to carrying out the proposed divisional reorganization, the Army plans to set up six new atomic support commands—small, mobile units modeled on the Southern European Task Force now stationed in northern Italy. Those units, designed to provide firepower support for allied forces overseas, will have 5,000-6,000 men armed with atom-tipped Honest John and Corporal missiles.

The Army's modernization encompasses new equipment as well as new organization. Additional missiles scheduled for the Army include the Lacrosse artillery missile,[11] the Dart anti-tank missile, and the Redstone tactical ballistic missile. It already has 280 mm. (about 11 inches) atomic cannon and, according to a May 1 announcement, eight-inch guns and howitzers capable of firing shells with nuclear warheads.

The main target in the Navy's current program, which

[11] The Army announced, Mar. 25, that it had received its first production model of the Lacrosse.

emphasizes missiles and nuclear propulsion, is completion of the first nuclear-powered aircraft carrier, scheduled for 1961; by 1966, the Navy plans to have six such carriers. Four more atomic submarines are called for in the new budget; the number of such craft ultimately will total 19. A nuclear cruiser is scheduled to be completed in 1960.

The Navy already has more than a dozen ships—carriers, cruisers, submarines, converted destroyers—capable of firing missiles, and more are on the way. Eight cruisers are to be converted to guided missile ships, 31 missile-firing destroyers and frigates are being built or planned, and four guided missile submarines are under construction or projected. Altogether, more than 50 vessels capable of firing missiles are in commission, undergoing conversion, or on the planning boards.

Carrier jet aircraft already in service are able to carry nuclear bombs and thus supplement the strategic bombing power of the Air Force. Ultimately, the Navy hopes to have the Polaris, a ship-launched missile with a 1,500-mile range, to increase its capacity for strategic bombardment.

Fewer Aircraft, More Missiles for Air Force

The Air Force has abandoned its long-standing goal of 137 wings. In the coming year the Strategic Air Command will drop six wings, containing about 75 aircraft each, of fighter escort planes. The fighters had been used to protect the relatively slow, prop-driven B-36s now being replaced by the faster B-52 jets; the latter fly at speeds and altitudes where fighter cover is not needed.

The Tactical Air Command will deactivate three fighter-bomber wings and one light-bomber wing which have been used to provide support for the Army, on the theory that the Army is able to furnish an increasing amount of its own support by means of missiles. TAC is slated to get a second wing of Matador pilotless missiles, which can be fitted with either conventional or atomic warheads. One wing already is deployed in Europe, and it was announced on May 7 that a Matador unit was to be stationed on Formosa.

The Air Force announced last month that during the fiscal year beginning July 1 it plans to purchase 1,515 planes of various types, including 18 additional test models of

the supersonic B-58 bomber—a possible successor for the B-47, SAC's medium-range work horse—and 101 B-52 heavy bombers. SAC is continuing to replace its old B-36s, of which it has nine wings, with B-52s. At present it has only two B-52 wings, but it plans to increase the number to eight by mid-1958 and to 11 eventually. The B-52 wings will be equipped with 45 of the new jet bombers instead of the present 30 B-36s.[12]

The 1,515 aircraft to be ordered during the coming fiscal year constitute an appreciably smaller number than the 1,867 bought during the 12-month period ending June 30. No specific reason for reducing purchases has been given, but the decision to buy fewer planes may be related to the increasing shift to missiles. During the year beginning July 1, the Air Force plans to order the Bomarc, a surface-to-air missile with a range of about 250 miles. The Air Force announced, May 9, that it will form its first intercontinental missile squadron later this year; it will be equipped with the Snark, a surface-to-surface missile with a range of around 5,000 miles and a speed of about 600 miles an hour.

The Air Force is pouring immense resources into its ballistic missile projects. Work is being pushed on the Thor, the intermediate range missile, and the Atlas and the Titan, two intercontinental missiles. Reports on the status of those projects have been conflicting; estimates as to dates of completion have ranged from months to years. The missiles are incredibly complex devices—an average model contains some 300,000 parts—and mishaps have been not infrequent. The Thor has been test-fired, but it has suffered several misfirings.[13] The Atlas is expected to be test-fired this year.

Gen. Nathan F. Twining, Air Force Chief of Staff and prospective Chairman of the Joint Chiefs of Staff, said recently that progress in the missile field had been remarkable but that several years would elapse before the longer-

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[12] A slowdown in production of B-52s to keep the output at the present rate of 15 a month instead of increasing it to a planned peak of 20 a month was announced by the Air Force on Apr. 18. Secretary Wilson explained that among reasons for the production stretch-out were the B-58's favorable performance and prospects of buying an improved version of the present B-52 model.

[13] The Associated Press reported from the Pentagon, Apr. 30, that the first complete assembly of a U.S. ballistic missile to have flown as far as 600 miles without mishap was the Army's Jupiter. Secretary Wilson witnessed that launching over the week end of Apr. 27-28.

range ballistic missiles would be "anything more than a supplement to the manned element of our air power." He added that it would "take even longer for these missiles to become a reliable substitute." [14]

Strategic Doctrines and National Security

THE GROWING TENDENCY to trust to nuclear deterrence has raised questions about the efficacy and safety of such a strategic concept.[15] Some strategists maintain that a future general war, if there is one, will be an all-out nuclear conflict, and that the only way of deterring or countering an atomic attack is to have the capacity to inflict overwhelming nuclear reprisal. Others contend that such recent military experience as that afforded by the hostilities in Korea, Indochina, and the Middle East—where use of nuclear weapons was specifically avoided—demonstrates that limited war is the only kind which an aggressor will dare to risk today.

Critics of nuclear force strategy argue that it is unrealistic and dangerous, because it leads to neglect of conventional weapons and thus exposes a country to nibbling aggression. They hold that slavish adherence to nuclear strategy renders diplomacy inflexible because it may leave a nation no choice but to start an atomic war, resist a non-nuclear attack with inadequate forces, or submit.

In that respect, it has been suggested that Britain might have been better able to handle last summer's Suez Canal crisis, which did not lend itself to use of nuclear weapons, if she had been able to muster immediately a large conventional force. It has been suggested additionally that when Britain and France did launch their invasion, lack of a force designed for such intervention prevented them from accomplishing their objective before pressure for withdrawal became overwhelming.

[14] Copyrighted interview by North American Newspaper Alliance, Inc., in *New York Times*, May 5, 1957.

[15] Commenting on the British White Paper, *The Economist* observed: "Cheaper defense is one thing, adequate defense another. Taking advantage of nuclear military technology to make large and welcome economies should not give currency to the idea that cheapness and adequacy in defense have automatically become, for the first time in human affairs, consistent."—"Science, Savings—and Security?" *The Economist*, Apr. 13, 1957, p. 123.

AMERICAN ESPOUSAL OF IDEA OF MASSIVE RETALIATION

American views on nuclear strategy were given prominence early in 1954 when Secretary Dulles enunciated the doctrine of massive retaliation. The United States, Dulles said, had decided in its military planning to "depend primarily upon a great capacity to retaliate, instantly, by means and at places of our choosing." [16] Dulles did not exclude the necessity of organizing local defense; indeed, he noted specifically that such defense would "always be important," but he declared that it must be "reinforced by the further deterrent of massive retaliatory power." Despite that qualification, the Secretary's announcement was widely interpreted to mean that in event of Communist aggression anywhere in the world, the United States would instantly direct atomic weapons on the U.S.S.R. or Red China.

Dulles sought to correct that impression at a news conference on Mar. 16, 1954. He said he had not meant that if there were a Communist attack somewhere in Asia, for example, nuclear bombs necessarily would be dropped on China or Russia. He had intended only to emphasize the point that it was imperative to have the capacity to undertake massive atomic retaliation. Despite such explanations, the doctrine continued to come under heavy fire from critics in this country and abroad.

Speaking in Chicago late in 1955, Dulles outlined a refinement of the doctrine of massive retaliation. He said that the United States, together with its allies, had developed a "collective system of great power" that could be "flexibly used on whatever scale may be requisite to make aggression costly." He reiterated that American capacity to retaliate "must be, and is, massive in order to deter all forms of aggression." But, he added, if the United States had to use that capacity, "Such use would be selective and adapted to the occasion." [17]

This new doctrine of measured atomic retaliation reportedly was adopted as national policy early in 1956. Secretary of the Air Force Donald A. Quarles elaborated further on the concept last autumn by saying that the United

[16] Address before Council on Foreign Relations, New York, Jan. 12, 1954. See "National Defense Strategy," *E.R.R.*, Vol. I 1954, p. 287.

[17] Address before Illinois Manufacturers' Association, Chicago, Dec. 8, 1955.

States must not be "triggered automatically into widespread atomic reaction by limited aggression." Quarles asserted that "We should choose our weapons carefully, place them accurately on forces directly engaged in aggression, and cease their application as soon as aggression is defeated." [18]

The general idea of making the punishment fit the crime, sometimes called selective force, sometimes measured retaliation, sometimes graduated deterrence, has been receiving more and more consideration by American and allied political and military experts.[19] They have stressed the necessity of having a wide range of flexible military capabilities to provide a "scale of deterrents so that all types of aggressive opportunities, from inspired revolutions to massive total attack, can be deterred." [20]

Technological developments make it certain, however, that even limited war will involve use of tactical atomic weapons. Secretary Wilson recently said that American policy was "based on the use of atomic weapons in a major war, and the use of such atomic weapons as would be militarily feasible and usable in a smaller war, if such a war is forced upon us." [21] The question then arises whether any war fought with such arms can be prevented from becoming a full-scale nuclear holocaust. The West German scientists who protested Chancellor Adenauer's decision to press for atomic weapons for West Germany stated that one tactical A-bomb could destroy a small city; such bombs were called small, they said, only in comparison with the H-bomb.[22]

Need to Maintain Balanced Forces Despite High Cost

Under the concept of graduated deterrence, according to Hanson W. Baldwin, the United States must be capable of fighting "all-out nuclear war, a limited nuclear war, a

[18] Address before National Security Industrial Association, New York, Sept. 26, 1956.

[19] Under the version of the graduated deterrence theory proposed by Adm. Sir Anthony W. Buzzard, formerly Director of British Naval Intelligence, "All our fighting should be limited (in weapons, targets, area, and time) to the minimum force necessary to deter and repel aggression, prevent any unnecessary extension of the conflict, and permit a return to negotiation at the earliest opportunity—without seeking total victory or unconditional surrender."—"Massive Retaliation and Graduated Deterrence," *World Politics*, January 1956, p. 229.

[20] Richard S. Leghorn, "Controlling the Nuclear Threat in the Second Atomic Decade," *Bulletin of the Atomic Scientists*, June 1956, p. 192.

[21] Testimony before House Appropriations subcommittee, released May 2, 1957.

[22] Tactical atomic weapons have been reported to range in size from those with an explosive power of a fraction of a kiloton (the equivalent of 1,000 tons of TNT) to those with the power of ten kilotons.

major non-nuclear war, small-scale brush wars." Baldwin concedes that such a policy is expensive, but he contends that it need not be hopelessly expensive because it does not imply "maintenance of full-time forces ready to win all wars everywhere." It does mean maintaining in a highly ready status (1) "that segment of our strength capable of the massive retaliation part of our two-headed military policy," and (2) "the hard core . . . of the limited-atomic and non-atomic units, around which the larger forces could be built in case of war." [23]

In a situation where both sides have nuclear capabilities the wisest course, according to Roger Hilsman of the Center of International Studies at Princeton University, probably would be "to base our preparations on the assumption that all three arms will be essential." As Hilsman sees it, nuclear weapons, "far from reducing the burden of military preparations," have probably increased it. "Bigger air forces, bigger armies, and bigger navies all seem to be needed, and the equipment for these forces is much more complicated and expensive than ever before."

Consequently, Hilsman observes, "Every nation has the right to weigh costs against risks and decide the point at which it would prefer to live a little more dangerously rather than make a further sacrifice." However, in view of the incomprehensible consequences of nuclear warfare, "If there is any validity at all to the proposition that by being prepared for war we are better able to prevent it, most of us would be willing to make whatever sacrifice is required." [24]

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[23] Hanson W. Baldwin, "The New Face of War," *Bulletin of the Atomic Scientists*, May 1956, pp. 157-158.

[24] Roger Hilsman, "Strategic Doctrines for Nuclear War," in William W. Kaufman (ed.), *Military Policy and National Security* (1956), pp. 71-72, 74.